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ABSTRACT

This document describes courses in grades 7-9 as well as comprehensive career planning that resulted from the Mississippi Tech Prep Initiative. Career Discovery at the seventh-grade level introduces students to career opportunities and the skills needed for various career paths. Computer Discovery at the eighth-grade level exposes students to a multimedia environment and fundamental computer skills. Technology Discovery at the ninth-grade level enables students to explore technology resources, processes, and systems and select paths leading to career development and advanced education. Course descriptions provide course goals, course outline with unit titles and numbers of days of instruction, and a sample unit of instruction. Components of each sample unit of instruction are a list of competencies and suggested objectives, suggested teaching strategies, suggested assessment strategies, and suggested references. The description of the career/educational plans that are initiated in the 7th grade and updated each year through the 12th grade includes an overview, discussion of key players, and description of key components. (YLB)

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ED 391 042

MISSISSIPPI TECH PREP

DISCOVERY COURSE PROFILES AND CAREER PLANNING

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CAREER DISCOVERY	Grade 7
COMPUTER DISCOVERY	Grade 8
TECHNOLOGY DISCOVERY	Grade 9
CAREER PLANNING	Grades 7-12

CE 070 613

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INTRODUCTION

The Mississippi Tech Prep Initiative prepares young people for the careers of tomorrow. The Initiative is based on principles of integration of academic and vocational education and strong applied teaching strategies. By combining innovative teaching methods and high-tech equipment, challenging, exiting classrooms have emerged. This document describes courses in grades 7, 8, and 9 as well as comprehensive career planning that result from the Mississippi Tech Prep Initiative. Coupled with six years of extensive career and educational planning, the Discovery Courses introduce all students to career opportunities, high-tech computer and technological skills.

Career Discovery at the seventh grade level introduces students to career opportunities and the skills needed for various career paths.

Computer Discovery at the eighth grade level exposes students to a multimedia environment and fundamental computer skills.

Technology Discovery at the ninth grade level enables students to explore technology resources, processes, and systems and select paths leading to career development and advanced education.

Career/Educational Plans are initiated in the seventh grade and updated each year through the twelfth grade.

Career exploration and educational planning, applications of technology, problem solving and decision making, human relations and teamwork, integration of academic skills, and school-to-work transition are emphasized throughout each course. Students apply skills in the four occupational clusters:

Agriculture and Natural Resources Technology,
Business and Marketing Technology,
Engineering and Industrial Technology, and
Health and Human Services Technology.

A strong counseling component is part of the Initiative's foundation; it is designed to assist students in making realistic career plans. Discovery courses are designed to enable students to make wise and meaningful occupational and educational choices for their future. With this foundation, students can move into Mississippi's cutting-edge secondary occupational or academic programs and advance from there to postsecondary education or to employment.

CAREER DISCOVERY

COURSE DESCRIPTION

Career Discovery uses an experiential hands-on approach to make learning more fun for students. This course is designed to provide a variety of experiences and activities which promote self-awareness, career exploration, and educational planning related to students' future educational and occupational plans. This course is not intended to force a premature career decision; rather it focuses on the awareness of career choices and pathways to achieve individual career goals. As hands-on opportunities are provided for students to explore the four career cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology), students become aware of career alternatives and transferability of skills within a cluster and between clusters. Field trips and other educational enhancements will be utilized as appropriate. As students become more aware of their own talents, abilities, and interests, they will develop portfolios to outline their future educational and career planning endeavors.

COURSE GOALS

- To introduce basic concepts related to careers and career planning.
- To develop basic understanding of their own aptitudes, interests, and abilities.
- To develop basic career competencies related to the SCANS competencies and foundation skills.
- To explore careers in selected areas of the four career clusters associated with the Tech Prep program - Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology.
- To develop and implement a tentative career/educational plan relevant to their aptitudes, interests, and abilities.

NOTE: Teachers are strongly encouraged to conduct activities in groups (teams), as well as individually.

CAREER DISCOVERY

COURSE OUTLINE

Unit No.	Unit Title	No. of Days
1	Orientation	3
2	Coping Skills and Decision Making	8
3	Thinking About Work, Jobs, and Careers	3
4	Who Am I	5
5	Foundations of Leadership and Teamwork	4
6	Family and Consumer Science Activities	15
7	Allied Health Activities	9
8	Personal Services Activities	7
9	Public Service Activities	7
10	Hospitality and Recreation Activities	5
11	Agribusiness Activities	10
12	Environmental Activities	5
13	Marine Science Activities	5
14	Construction Activities	11
15	Manufacturing Activities	5
16	Transportation Activities	10
17	Business Technology Activities	8
18	Communications Activities	12
19	Fine Arts and Humanities Activities	6
20	Marketing and Distribution Activities	5
21	Re-evaluating Career Goals/Options	4
22	Career Profile	6

CAREER DISCOVERY

SAMPLE UNIT OF INSTRUCTION

CAREER DISCOVERY
UNIT 7: ALLIED HEALTH ACTIVITIES **(9 days)**

Competencies and Suggested Objectives:

1. Explore and practice skills related to careers in health occupations.
   a. Explore skilled, technical, and professional level careers in health occupations related to the roles of physicians and surgeons, nurses, technologists and technicians, and other personnel related to therapeutic services, diagnostic services, environmental and equipment services, and general services.
   b. Measure and record another student's pulse and respiration.
   c. Measure and record another student's blood pressure.
   d. Measure and record his/her own temperature.
   e. Check and record his/her own visual acuity (eyesight) using the Snellen Scale.
   f. Demonstrate the Heimlich maneuver on an infant and adult model.
   g. Identify and locate the four types of human teeth.
   h. Demonstrate the treatment of first aid injuries to include sprains, fractures, bleeding, seizures, etc.

Suggested Teaching Strategies:

Discussion, teacher demonstration, practice and demonstration by students, and working in pairs/groups. Resource speaker (paramedic/nurse/physician, etc. Also consider dentist, dental hygienist, physical therapy, medical technologist, etc.). A field trip to tour an ambulance is optional.

Suggested Assessment Strategies:

1. Explore and practice skills related to careers in health occupations.
   a. Complete Exploring Careers exercise and assignment. Complete journal assignment.
   b. Perform Join the Medical Profession exercise and assignment for pulse and respiration.

c. *Perform Join the Medical Profession exercise and assignment for blood pressure.*
d. *Perform Join the Medical Profession exercise and assignment for temperature.*
e. *Perform Join the Medical Profession exercise and assignment for visual acuity.*
f. *Perform The Heimlich Maneuver exercise and journal assignment.*
g. *Complete Join the Dental Profession exercise and assignment.*
h. *Perform the First Aid exercise and assignment.*
i. *Unit test.*

Suggested References:

An Activity Manual for Career Discovery. Research and Curriculum Unit for Vocational and Technical Education, Mississippi State University, Mississippi State, MS 39762. 1995.

Choices Jr. (software package). Ogdensburg, NY: Careerware, IMS Information Systems Management Corporation.

Kelly-Plate, Joan, and Volz-Patton, Ruth. Career Skills (2nd ed.). Mission Hills, CA: Glencoe, Macmillan/McGraw-Hill. 1991 or later edition.

U.S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook (OOH). Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office. 1994 or later edition.

U.S. Department of Labor, Employment and Training Administration. Dictionary of Occupational Titles (DOT). Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office. 1994 or later edition.

COMPUTER DISCOVERY

COURSE DESCRIPTION

Computer Discovery uses an innovative multimedia environment to make subject matter come alive. This course is designed to provide fundamental skills in the operation of microcomputers, including an introduction to computers, keyboarding skills, operating systems using Windows, and file management skills. Real-world applications in word processing, graphics, databases, telecommunications, spreadsheets, and desktop publishing make the course exciting, relevant, and challenging. Each student will compile a Computer Discovery portfolio of computer projects based on the four career cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology). This course will integrate communication and mathematics skills. This course will also include expanded basics in problem solving, decision making, critical thinking, human relations, career exploration, planning, and organization skills to prepare students for future careers.

COURSE GOALS

- To develop competencies in the use of the alphabetic and numeric keyboard by touch.
- To develop a basic understanding of terminology and applications, components, and care associated with the use of microcomputers.
- To develop an understanding of information processing principles and associated logical concepts.
- To develop an understanding of how key computer applications (word processing, database, spreadsheet, graphing, telecommunications, and desktop publishing) are used in a work environment.
- To develop listening, speaking, reading, and writing skills for students to function successfully on jobs and in life experiences.
- To develop math skills to analyze numbers to solve problems through basic mathematical operations.
- To develop competencies in individual responsibility, sociability, self-management, integrity, and leadership.
- To develop competencies associated with problem solving, decision making, and critical thinking.
- To develop competencies associated with career planning.

COMPUTER DISCOVERY

COURSE OUTLINE

Unit No.	Unit Title	No. of Days
1	Introduction to Computer Discovery	10
2	Keyboarding	40
3	Introduction to Windows	2
4	Operating Systems	13
5	Word Processing Applications	30
6	Data Management Applications	15
7	Spreadsheet Applications	15
8	Telecommunications	10
8-A	Telecommunications	10
9	Desktop Publishing	10
10	Computers in Careers	5

SAMPLE UNIT OF INSTRUCTION

COMPUTER DISCOVERY
UNIT 8: TELECOMMUNICATIONS (To be used in labs that do not have access to the Internet) (10 days)

Competencies and Suggested Objectives:

1. Understand basic telecommunication applications.
   a. Define terminology associated with telecommunications.
2. Utilize proper commands to access on-line information.
   a. Perform telecommunication activities.
   b. Research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation.
   c. Apply telecommunication applications to related academic skills in math, science, and communications.
   d. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Suggested Teaching Strategies:

Discussion, demonstration, simulation, field trip, and multimedia presentation.

Suggested Assessment Strategies:

1. *Understand basic telecommunication applications.*
   a. *Unit test to define terminology associated with telecommunications to include facsimile, telecommunications, bulletin board service (BBS), electronic mail, teleconferencing, file transfer, network, modem, baud rate, host computer, uploading, downloading, local area networks (LAN), wide area networks (WAN), special interest group (SIG), Internet, and online.*
2. *Utilize proper commands to access on-line information.*
   a. *Performance exercise to access a simulated on-line information service; browse through a BBS; post a message on a BBS or SIG; use correct passwords and user ID's for different on-line services; log out of the system*

and hang up the line; and perform a Boolean search on an on-line encyclopedia.

b. *Student report to research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation on future uses of telecommunications in an occupation such as Aquaculture Technology, Medical Records Technology, Electronics Technology, or Biomedical Technology.*

c. *Complete assignments using telecommunication applications as related to academic skills in math, science, and communications.*

d. *Complete assignments relating to the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/ Industrial Technology, and Health/Human Services Technology).*

Suggested References:

Ashton, Gary L.; Barksdale, Karl; Rutter, Michael; Stephens, Earl Jay. Internet Activities: Adventures on the Super Highway. Cincinnati, OH: South-Western Publishing Co. 1995.

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Cubbler, Charlotte D.; Olivo, John J., Jr.; and Scrogan, Len. Telecommunications: Concepts and Applications. Cincinnati, OH: South-Western Publishing Co. 1992.

Groneman and Jaderstrom. Computer Applications. Cincinnati, OH: South-Western Publishing Company. 1994.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

Info-Bridge (simulation telecommunications software). Cincinnati, OH: South-Western Publishing Co. 1993.

Salkind, Neil J. Hands-On Internet for Windows. Danvers, MA: Boyd and Fraser Publishing Co. 1996.

COMPUTER DISCOVERY
UNIT 8A: TELECOMMUNICATIONS (INTERNET) **(10 days)**

(This unit is to be used as an alternative to Unit 8: Telecommunications in labs which have access to the Internet. The time allocated to this unit is based on the amount of time needed to orient the students to the use of the Internet. Teachers are encouraged to allow students to use this valuable resource throughout the year to gather information for reports and papers in Computer Discovery and other classes.)

Competencies and Suggested Objectives:

1. Understand telecommunication networks and applications.
   a. Define terminology associated with telecommunication networks.
   b. Describe the different components of the Internet.
   c. Certify understanding of "appropriate use" policies related to telecommunication networks.
   d. Apply telecommunication applications to related academic skills in math, science, and communications.
   e. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
2. Utilize applications of a telecommunication network.
   a. Log-in and log-out of a telecommunication network.
   b. Send and receive messages via E-mail.
   c. Search, retrieve, and download information via gopher.
   d. Search, retrieve, and download information via the World Wide Web.

Suggested Teaching Strategies:

Discussion, demonstration, multimedia presentation, laboratory demonstration, and practice.

Suggested Assessment Strategies:

1. Understand telecommunication networks and applications.
   a. Unit test on terminology associated with telecommunication networks including facsimile, BBS, file transfer, teleconferencing, uploading, downloading, E-mail, Internet, etc.

b. *Unit test on components of the Internet including FTP, gopher, newsgroups, and the World Wide Web.*
c. *Sign an "appropriate use" agreement governing use of the school computers in relation to telecommunication network.*
d. *Complete assignments using telecommunication applications to related academic skills in math, science, and communications.*
e. *Complete assignments relating to the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/ Industrial Technology, and Health/Human Services Technology).*

2. *Utilize applications of a telecommunication network.*
   a. *Student exercise to log-in and log-out of a telecommunication network.*
   b. *Student exercise to sent and receive messages via E-mail.*
   c. *Student exercise to search, retrieve, and download information via gopher in an occupation such as Aquaculture Technology, Medical Records Technology, Electronics Technology, or Biomedical Technology.*
   d. *Student exercise to search, retrieve, and download information via the World Wide Web in an occupation such as Aquaculture Technology, Medical Records Technology, Electronics Technology, or Biomedical Technology.*

Suggested References:

Ashton, Gary L.; Barksdale, Karl; Rutter, Michael; Stephens, Earl Jay. Internet Activities: Adventures on the Super Highway. Cincinnati, OH: South-Western Publishing Co. 1995.

Bradley, Julia Case. A Quick Guide to the Internet. Belmont, CA: International Thompson Publishing Company. 1995.

Carey, Patrick; Ambrosia, Angela. The Internet: Illustrated. Cambridge, MA: Course Technology, Inc. 1995.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

Salkind, Neil J. Hands-On Internet for Windows. Danvers, MA: Boyd and Fraser Publishing Co. 1996.

TECHNOLOGY DISCOVERY

COURSE DESCRIPTION

Technology Discovery is designed to introduce students to technology and provide an articulated path leading to career development and advanced education. Technology Discovery is intended to provide students with fundamental knowledge about technology and to introduce them to skills for solving problems in a technological society.

This course is presented through a series of technology based hands-on learning activities, mainly using self-contained, instructional modules with teams of learners participating in student-directed activities. Students learn through research, visualization, modeling, design, simulation, prototyping, journaling, presentations, demonstrations, problem-solving techniques, role playing, and testing.

COURSE GOALS

- To identify technological resources and apply them within the four career cluster areas of Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology.
- To experience and utilize selected technological processes found within the four career cluster areas.
- To utilize technological systems to solve problems.
- To apply and transfer knowledge and skills regarding diverse technological systems.

TECHNOLOGY DISCOVERY

COURSE OUTLINE

Unit No.	Unit Title	No. of Days
1	Overview of Technology Discovery Course	5
2	Introduction to Technology	10
3	Aerospace Technology	10
4	Audio/Visual Communications Technology	10
5	Biomedical Technology	10
6	Computer-Aided Design and Drafting (CADD) Technology	10
7	Computer Imaging Technology	10
8	Electrical Technology	10
9	Engineering Structures Technology	10
10	Environmental Technology	10
11	Laser Technology	10
12	Manufacturing Management Technology	10
13	Production/Processing Technology	10
14	Robotics Technology	10
15	Satellite Communications Technology	10
16	Emerging Technologies	5

TECHNOLOGY DISCOVERY

SAMPLE UNIT OF INSTRUCTION

TECHNOLOGY DISCOVERY
UNIT 5: BIOMEDICAL TECHNOLOGY **(10 days)**

Competencies and Suggested Objectives:

1. Apply terms and concepts related to biomedical technology.
   a. Define terms associated with biomedical technology.
   b. Identify science concepts as related to biomedical technology.
   c. Apply mathematical calculations, concepts, and measurements in the development of solutions to technological problems in biomedical technology.
   d. Describe/diagram an aspect of biomedical technology using the universal systems model.
2. Apply biomedical technology in one of the career cluster areas.
   a. Identify applications of biomedical technology related to the career clusters.
   b. Apply biomedical technology concepts to the career cluster areas.

Suggested Teaching Strategies:

Modular Instruction Method - Students will master the competencies by working in teams and following the instructions and activities detailed in a ten-day instructional module. Specifically, the student will:

1. *Explain anatomy and physiology of human biological systems.*
2. *Measure diastolic and systolic blood pressure using a computer controlled instrument.*
3. *Prepare graphs and charts of blood pressure and heart readings under varying stress levels.*
4. *Predict reaction time using a visual stimulus.*
5. *Perform practical use of medical reference dictionaries on CD-ROM.*
6. *Use a CD-ROM computer software program to simulate the operation, care, and treatment of problems of the human heart.*
7. *Use a CD-ROM computer software simulation program to diagnose and prescribe care for a variety of diseases and disorders.*
8. *Conduct a career research project involving health care careers.*

9. *Analyze problems of sleep deprivation using a videotape.*
10. *Observe procedures for prevention and treatment of sports injuries using a videotape.*
11. *Describe/diagram an aspect of biomedical technology using the universal systems model.*

Suggested Assessment Strategies:

1. *Apply terms and concepts related to biomedical technology.*
   a. *Test - Define terms associated with biomedical technology.*
   b. *Test - Identify science concepts as related to biomedical technology.*
   c. *Assignment - Apply mathematical calculations, concepts, and measurements in the development of solutions to technological problems in biomedical technology.*
   d. *Assignment - Describe/diagram an aspect of biomedical technology using the universal systems model.*
   e. *Assignment - Explain anatomy and physiology of the human physiological systems.*
2. *Apply biomedical technology in one of the career cluster areas.*
   a. *Performance Activity - Measure diastolic and systolic blood pressure using a computer controlled instrument.*
   b. *Performance Activity - Prepare graphs and charts of blood pressure and heart readings under varying stress levels.*
   c. *Performance Activity - Predict reaction time using a visual stimulus.*
   d. *Performance Activity - Perform practical use of medical reference dictionaries on CD-ROM.*
   e. *Performance Activity - Use a CD-ROM computer software program to simulate the operation, care, and treatment of problems of the human heart.*
   f. *Performance Activity - Use a CD-ROM computer software simulation program to diagnose and prescribe care for variety of diseases and disorders.*
   g. *Assignment - Conduct a career research project involving health care careers.*
   h. *Assignment - Analyze problems of sleep deprivation using a videotape.*
   i. *Assignment - Observe procedures for prevention and treatment of sports injuries using a videotape.*

Suggested References:

Biotech Technology Module (IBM/CD-ROM), #72-1210. Roanoke, VA: Graves-Humphreys.

COMPREHENSIVE CAREER PLANNING/ COUNSELING PROGRAM

OVERVIEW

Mississippi's Tech Prep counseling component is designed to organize and expand competency-based career development strategies, activities, and experiences that will assist **ALL** students in making realistic career plans. These plans are initiated in the seventh grade and updated annually through the twelfth grade. Appropriate educational opportunities and career resources are made available through the public school's curriculum and career centers.

KEY PLAYERS

Local school districts recognize key groups who work together to assure students have the opportunity for adequate career and educational planning. Key players in the team effort are:

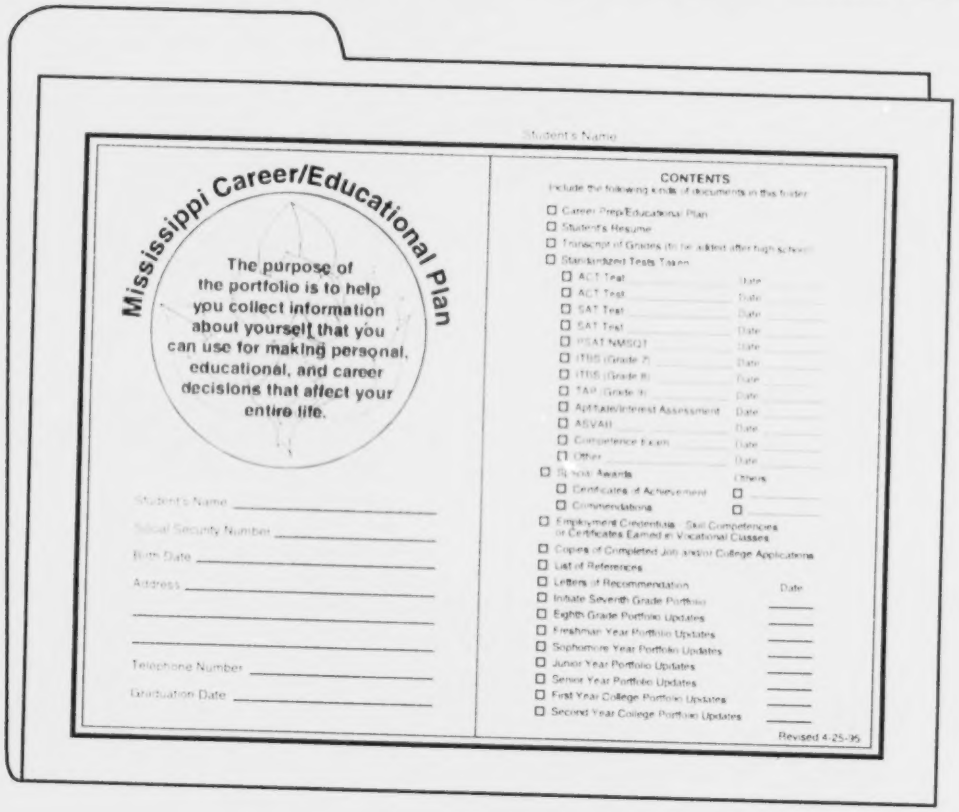
- **Administrators**, who lead, support, and make key decisions.
- **Counselors**, who coordinate, select, and plan all activities using career educational materials for the students entire year of planning.
- **Teachers**, who serve as advisors in a series of meetings each year with small groups of students designed to distribute appropriate career information.
- **Career Center Technicians**, who manage high school career centers and make available career and educational materials every day, so that students will have the broad base of knowledge necessary for forming occupational and educational choices.

KEY COMPONENTS

Mississippi's Comprehensive Career Planning/Counseling Program uses three major areas in its approach to career and educational planning.

- The **Career Center** is the resource unit available to all students and school staff.
- The **Mississippi Career/Educational Plan** is the tool used to record and update individual plans throughout each year.
- The **Teacher/Advisor Program** is the vehicle through which these career materials are distributed, advisement is given, and plans are made.

Mississippi Career Educational Plan



A comprehensive six-year plan is initiated in grade seven and updated annually through grade twelve.

My Individual Career Plan
CAREER PREP Program Plan
CAREER PREP EDUCATIONAL PLAN
EXTRACURRICULAR ACTIVITIES/STUDENT ORGANIZATIONS & CLUBS
HONORS AND AWARDS
RESULTS OF CAREER ASSESSMENT

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